

- 17 -

### Patent Claims

1. Dowel (1) for the assembly of an insulating plate (2) on a substructure  
2 (3) having a pressing plate (13) and a dowel sleeve (15) attached to said  
pressing plate (13) for taking up an expansion element (11) having an  
4 expansion element head (12), wherein the dowel sleeve (15) comprises  
an expansion zone (18),  
6 **characterized by**  
cutting devices (17) at the lower side of pressing plate (13) at the cir-  
8 cumference of said pressing plate for cutting in the insulating plate (2)  
during pulling in of pressing plate (13) into the insulating plate (2) under  
10 simultaneous compression of said insulating plate (2).
2. Dowel according to claim 1, **characterized by** a pressing plate (13)  
2 having a pressing plate shaft (14) attached therewith, wherein the press-  
ing plate shaft (14) and the dowel sleeve (15) can be axially shifted  
4 against each other.
3. Dowel according to one of the preceding claims, **characterized in that**  
2 the pressing plate (13) comprises a recess (19) for the engagement of a  
drive (32, 33).
4. Dowel according to one of the preceding claims, **characterized in that**  
2 the pressing plate (13) includes an engagement device, in which the ex-  
pansion element (11) can engage.

- 18 -

5. Dowel according to one of the preceding claims, **characterized in that**  
2 the dowel sleeve (15) comprises an anti-twist device against twisting of  
the dowel sleeve (15) within the bore-hole (4).
  
6. Method for the assembly of an insulating plate (2) on a substructure (3)  
2 by means of a dowel (1) having a pressing plate (13) and a dowel sleeve  
(15) attached to said pressing plate (13) for taking up an expansion ele-  
4 ment (11) having an expansion element head (12), wherein the dowel  
sleeve (15) comprises an expansion zone (18), comprising at least the  
6 following steps:
  - 8 a) drilling of a bore-hole (4) through the insulating plate (2) into  
the substructure (3),
  - 10 b) inserting the dowel (1) and the expansion element (11) into the  
bore-hole (4),
  - 12 c) driving in the expansion element (11) into the pressing plate  
(13) and the dowel sleeve (15) and simultaneously
  - 14 d) pulling in the pressing plate (13) into the insulating plate (2)  
under compression of the insulating plate (2) and simultane-  
16 ously cutting in the insulating plate (2) at the circumference of  
the pressing plate (13) by means of cutting devices (17).

- 19 -

7. Method according to claim 6, **characterized by** a complete pulling in of  
2 the pressing plate (13) into the insulating plate (2) in step d) and the  
further step of:  
4  
e) putting on a covering (21) onto the completely sunk-in pressing  
6 plate (13).
8. Method according to claim 6 or 7, **characterized in that** the cutting  
2 devices (17) are arranged at the lower side of the pressing plate (13).
9. Method according to claim 6 or 7, **characterized in that** the cutting  
2 devices (17) are arranged on a device (30) for driving in the expansion  
element (11).
10. Device (30) for driving in an expansion element (11) into a dowel (1)  
2 having a pressing plate (13) for fixing an insulating plate (2) on a sub-  
structure (3), wherein the device (30) comprises a drive (32, 33) for the  
4 engagement into the expansion element (11),  
**characterized by**  
6 a depth stop (31) having cutting devices (17) for cutting in the insulating  
plate (2) along the circumference of the pressing plate (13).
11. Method for the assembly of an insulating plate (2) on a substructure (3)  
2 by means of a dowel (1) having a pressing plate (13), said pressing plate  
(13) having an outer radius R and a dowel sleeve (15) attached to said  
4 pressing plate (13) for taking up an expansion element (11) having an  
expansion element head (12) wherein the dowel sleeve (15) comprises

- 20 -

6 an expansion zone (18), the method comprising at least the following  
steps:

8

- 10 a) drilling of a bore-hole (4) through the insulating plate (2) into  
the substructure (3)
- 12 b) cutting in a circle with at least the radius R into the insulating  
plate (2) by means of cutting devices (42),
- 14 c) inserting the dowel (1) and the expansion element (11) into the  
bore-hole (4),
- 16 d) driving in the expansion element (11) into the pressing plate  
(13) and the dowel sleeve (15) and simultaneously
- 18 e) pulling in the pressing plate (13) into the insulating plate (2)  
under compression of the insulating plate (2).

12. Method according to claim 11, **characterized in that** step b) is carried  
2 out previous to step a).

13. Method according to claim 11, **characterized in that** the steps a.) and  
4 b.) are carried out simultaneously.

14. Method according one of the claims 11 to 13, **characterized by a com-**  
2 **plete pulling in of the pressing plate (13) into the insulating plate (2) and**  
the further step of:

4

6 f) putting on a covering (21) onto the completely sunk-in pressing  
plate (13).

15. Method according to one of the preceding claims **characterized in that**  
2 the cutting devices (42) comprise a depth stop (41).

- 21 -

16. Device (40) for drilling a bore-hole (4) through an insulating plate (2)  
2 into a substructure (3) having a shaft (44') for inserting a drill adapter,  
**characterized in that**  
4 the shaft (44') is formed in such a way that cutting devices (42) for cut-  
ting in a circle into the insulating plate (2) can be arranged at said shaft  
6 (44').
17. Device according to claim 16, **characterized in that** the cutting devices  
2 (42) comprise a depth stop (41).
18. Device (40) for drilling a bore-hole (4) through an insulating plate (2)  
2 into a substructure (3) having a drill shaft (44), **characterized in that**  
cutting devices (42) for cutting in a circle into the insulating plate (2)  
4 can be arranged at said drill shaft (44).
19. Device according to claim 18, **characterized in that** the cutting devices  
2 (42) comprise a depth stop (41).
20. Cutting devices (42) for cutting in a circle into an insulating plate (2),  
2 **characterized in that**  
they are formed in such a way that they can be mounted on a device (40)  
4 for drilling a bore-hole (4) through an insulating plate (2) into a  
substructure (3).
21. Cutting devices according to claim 20, **characterized in that** the cutting  
2 devices (42) comprise a depth stop (41).